

PRESIDENT'S UPDATE

SPRING 2015



MESSAGE FROM THE PRESIDENT

The Institute will celebrate its 130th anniversary in 2015. If the “father of Georgia Tech,” Nathaniel Harris, could see what his brainchild has become since he helped pass the bill in the Georgia legislature that created Georgia Tech in 1885, he would surely be impressed. Georgia Tech continues to be a destination for many of the best and brightest students in the country and the world, particularly for those interested in technology. It’s also a launching point for scientific and technological advances that are dramatically improving the human experience both here and abroad.

In our strategic plan, *Designing the Future*, which we completed five years ago, we projected ahead 25 years, and it is appropriate that we do so again now to understand what those advances might be. Some scientists predict that in the next 25 years the growth of knowledge will be five to 10 times faster than in the preceding 25 years. If we use the five-times scenario, predicting the potential world of 2040 would be like trying to imagine our life today from back in the early 1880s, when there were no electric lights, no automobiles, no radio, television, or motion pictures, no airplanes, and only very limited use of antibiotics. And of course, no Internet, iPhones, and no Georgia Tech.

If we extrapolate using the 10-times scenario, it would be like the people of 1764 trying to determine what 2015 to 2040 might look like. Isaac Newton, who helped develop calculus, had been dead for less than 40 years (imagine a life without calculus — OK, never mind), but his discoveries and formulations were just starting to shape the way scientists thought about the physical world, and only the elite knew about the “concept of gravity.”

So how do we go about “Designing the Future,” as our 25-year strategic plan

directs us? By making educated assessments of what that future might look like even as we know that some of what our students learn as freshmen may be obsolete by the time they graduate. That’s not a new challenge for the Institute, which has for the past 130 years looked forward, peering into the future and seeking ways to make it better.

We have tremendous confidence in the people who make Georgia Tech what it is today: the faculty, staff, and students. This past fall, we welcomed the best-qualified, most diverse freshman class for the sixth year in a row. Judging by our early admits, we have a great chance of continuing that distinction for a seventh year.

Georgia Tech continues to expand its prominence on the national scene. Recently, we hosted President Barack Obama, and our Spring Commencement speaker lineup includes President Emeritus Wayne Clough, U.S. Secretary of Education Arne Duncan, and NATO Supreme Allied Commander Philip Breedlove, a 1977 Georgia Tech graduate.

Georgia Tech continues to attract the very best from around the world. More than 6,000 of our 143,000 living alumni reside outside the United States. Almost half our students have a work- or study-abroad experience before they graduate. Thanks to our outstanding faculty, staff, students and alumni, Georgia Tech’s reach is now extending well beyond the Atlanta campus in our ongoing effort to improve the human condition here and around the world.



G.P. “BUD” PETERSON
PRESIDENT, GEORGIA INSTITUTE
OF TECHNOLOGY



G. P. “Bud” and Val Peterson welcome the crowd at Georgia Tech’s InVenture Prize competition.

Cover image: *Big, Red Tumpkin*, by Verina Baxter, was part of the 2013-14 “Engineered Art” sculpture exhibition. It is now part of the Institute’s permanent art collection.



Tech Square has helped foster an environment that attracts not only the entrepreneurial community but also a number of major Fortune 500 and multinational firms that see it as a critical component that helps drive their business.

TECH SQUARE

Since launching in 2003, **Tech Square** has become one of the country's premier research and innovation centers. The momentum has continued this past year as large companies take advantage of the resources and innovative environment. The synergy as they partner with small firms and startups is impressive. The latest additions include **Southern Company**, **Home Depot**, Coca-Cola Enterprises (CCE), and **Worldpay**, along with AT&T Mobility and **NCR**. These large-company "innovation centers" also allow them to interact with the talent and expertise that exist at Georgia Tech in our students, faculty, and staff – and all benefit. Both NCR and Worldpay have announced that they are moving their corporate headquarters to be closer to Georgia Tech.

The planned **High Performance Computing Center (HPCC)**, in the heart of Tech Square, will drive innovations in high-performance computing by converging industry, research, and educational leadership in a dynamic, world-class environment. The HPCC will support the economic development of Atlanta and Georgia by creating jobs, new tax revenues, and technology clusters, with a particular focus on FinTech, healthcare IT, and data analytics.

The Association of University Research Parks (AURP) named Technology Square its "**2014 Outstanding Research Park Award**" winner.

PROGRESS ON THE STRATEGIC PLAN

Georgia Tech continues to make solid progress toward the goals designated in the 25-year strategic plan introduced in 2010, **Designing the Future**. Success stories that have already grown out of "Designing the Future" include our Innovation and Design Collaborative, Arts@Tech, the Family-Friendly Initiative, a strengthened industry focus, greater global engagement, a strategic business and operations framework, and the revitalization of undergraduate education.

This spring, the Institute submitted its **Quality Enhancement Plan (QEP)**, "Serve•Learn•Sustain," as a key component of its 2015 reaffirmation with the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). The Serve•Learn•Sustain effort addresses educational needs voiced by our graduates, enhances long-held Georgia Tech values, and builds on **Georgia Tech's 25-year strategic plan**. Our previous QEP, which focused on study abroad and undergraduate research, was transformative: 48 percent of our undergraduates have an international experience, and according to our exit survey, 38 percent participate in some form of undergraduate research.





GLOBAL IMPACT

An integral component of Georgia Tech's vision is to define the technological research university of the 21st century. A primary goal is to expand our reach and influence to ensure that we are graduating good global students. The Institute's footprint is large and growing. **Georgia Tech ranks No. 6** on U.S. News & World Report's list of the 100 Best Global Universities for Engineering and is No. 61 on the publication's list of the 500 Top Global Universities. Georgia Tech faculty, students, and researchers are conducting research on every continent.

Last summer, **Georgia Tech-Lorraine** in Metz, France, celebrated the **opening of Institut Lafayette**, expected to become a central point for optoelectronics technology transfer and commercialization. Georgia Tech also has global centers in China, Singapore, Costa Rica, Panama, and Mexico.

Drawing from 115 countries, Georgia Tech is a destination for some of the world's brightest undergraduate and graduate students. Tech students are studying or working in more than 70 countries. On the gatech.edu website, our **FullCircle** page features stories about Georgia Tech people making their mark all over the world.

The first group of students seeking **Georgia Tech's Online Master of Science in Computer Science (OMS-CS) degree** is expected to graduate in May 2015. In January 2014, the College of Computing welcomed its inaugural cohort of 380 students seeking the first professional OMS-CS degree that can be earned completely through the massive online format. One year after launch, more than 2,300 students are enrolled. The degree, provided in collaboration with online education leader Udacity Inc. and AT&T, has received global attention.

NATIONAL IMPACT

"What Does Georgia Tech Think?" is a question that researchers, business, media, and government are increasingly asking. Faculty, staff, and alumni are offering expertise on panels and boards, testifying before Congress, serving as media experts, and working in off-campus leadership positions.

President Barack Obama **addressed a crowd** of almost 10,000, mostly students, on March 10 at McCamish Pavilion and called Georgia Tech "one of the finest technical institutes in the world." A White House spokeswoman said the Institute was selected for a presidential visit because of its high job placement rates, debt-free enrollment for certain qualified students (**G. Wayne Clough Georgia Tech Promise scholars**), and its **Online Master of Science in Computer Science (OMS-CS)**.

U.S. Secretary of Commerce Penny Pritzker, who toured Georgia Tech's Global Center for Medical Innovation during her first 100 days in office, praised GCMI during her **2015 State of Entrepreneurship Address**.

The Association of Public and Land-grant Universities (APLU) named Georgia Tech as one of three winners of the 2014 Innovation and Economic Prosperity Universities (IEP) Award.

IPaT Executive Director Beth Mynatt represented Georgia Tech at the Jan. 30 launch of President Barack Obama's Precision Medicine initiative.

Robot Curi and Andrea Thomaz, director of Georgia Tech's Socially Intelligent Machines Lab, were featured in the November 2014 Popular Science cover story.



Georgia Tech has had the privilege of welcoming our nation's leaders to speak on campus for more than a century, and the tradition continued on March 10 as we welcomed President Barack Obama.

Tony Giarrusso, a senior research scientist in the Center for Geographic Information Systems in the Georgia Tech School of Architecture, takes a reading of the vegetation in Volcanoes National Park to help improve gorilla tracking data.



REGIONAL IMPACT

This spring, Home Depot joined our already strong lineup of innovation centers in Tech Square. Our students have the opportunity to work with Home Depot technologists on products and services that will make their way into the company's retail stores, warehouses, and supply-chain networks.

Coca-Cola Enterprises Inc. will open an almost 5,000-square-foot innovation and development center in the Centergy Building in Tech Square.

NCR Corp. already had an R&D center — NCR Hosted Solutions Group — in Tech Square at the Biltmore. In January, the company announced that it will relocate its headquarters to Tech Square from the suburbs, bringing along close to 4,000 employees.

Based in Tech Square and nine regional offices throughout the state, the Georgia Manufacturing Extension Partnership (GaMEP) in January launched "Faces of Manufacturing," an online showcase that features unsung heroes of Georgia manufacturing.

GaMEP was awarded the Southeast Automotive Manufacturing Technology Acceleration (MTAC) grant and subsequent B2B grant. These projects will increase and create connections for the SE Automotive Supply Chain for access to innovations and new technologies. The Enterprise Innovation Institute (EI²) within the past year has helped more than 1,100 Georgia manufacturers create or retain 2,335 jobs, save \$128 million, and increase sales (new or retained) by \$286 million. EI² assisted faculty members in evaluating 235 research innovations and helped form 31 new companies based on this intellectual property. In all, Georgia Tech research innovations drew \$33 million in direct investment and created 737 jobs. It also helped Georgia companies secure \$592 million in government contracts and create or save an estimated 11,850 jobs.

RESEARCH

Georgia Tech's research strategy focuses on creating transformative opportunities, strengthening collaboration, and maximizing economic and societal impact. With research expenditures of more than \$730 million, the Institute is among the nation's top 10 in research expenditures for universities without a medical school. Georgia Tech researchers are delving into problems ranging from energy efficiency to microscopic needles. Such challenges are tailor-made for Tech, an institution known both for its scientific/technological innovation and its leadership on issues of great societal importance.

The Engineered Biosystems Building (EBB), scheduled to open this summer on the campus' north side, has been designed as an interdisciplinary hub to foster collaboration that many times results in incredible breakthroughs. It has been said that if the cure for cancer is to be found at Georgia Tech, it will happen in the EBB.

Already, Georgia Tech is doing pioneering work on improving human health and well-being. A study by School of Chemical and Biomolecular Engineering researchers has identified how one important gene helps cancer cells break free from the primary tumor. Their findings could be used to identify potential targets for scientists who are looking for ways to block or slow metastasis.

Research in the Wallace H. Coulter Department of Biomedical Engineering is leading to the development of robots to help those with limited mobility do such things as shave, adjust a blanket when cold, and even scratch an annoying itch.

Researchers from Georgia Tech and other universities travel to the pristine island of Crete to study how air pollution traveling across great distances interacts with sunlight and affects climate. Photo: Athanasios Nenes



COLLABORATION

Georgia Tech's impact is multiplied not only through interdisciplinary cooperation but also via collaboration with education, business, government, and communities. The Institute has longstanding partnerships in numerous areas with such prominent institutions as Emory University and Children's Healthcare of Atlanta.

In fall 2014, Georgia Tech announced that it will offer automatic acceptance and four-year in-state tuition scholarships to all Atlanta Public Schools valedictorians and salutatorians. This initiative will increase exposure and access to Georgia Tech for APS's most prepared students. This year Georgia Tech had a 77 percent increase in applications from the APS, from 70 in 2014 to 124 in 2015, including at least one from each of the system's public and charter schools. Forty-four APS students were admitted in 2015, compared with 30 in 2014.

Researchers at the Georgia Tech Research Institute (GTRI) and the Army Reprogramming Analysis Team (ARAT) are testing software used in a defensive system that helps protect Army aircraft from attack by shoulder-launched missiles and other threats.

Georgia Tech's Interoperability and Integration Innovation Lab is working with UCB, a global biopharmaceutical company, to explore how predictive analytics can help inform treatment decisions for people living with epilepsy.

In the community, Georgia Tech partners citywide to support and sponsor popular events such as Africa Atlanta, France-Atlanta, and the Atlanta Science Festival.

A February public symposium on "Compassion and Leadership in a Multi-Faith World" launched the newly established Leadership and Multi-Faith Program (LAMP), a joint initiative between Georgia Tech's Ivan Allen College of Liberal Arts and Emory University's Candler School of Theology.

Britney Schmidt and her team, including engineers from the Georgia Tech Research Institute led by Mick West, built a robotic underwater vehicle called Icefin and deployed it to explore the underside of the ice shelves flowing off the continent.

From more than 500 entrants in this year's InVenture Prize competition, the FlameTech Grill Defender team emerged the winner, with Team OculoStaple finishing second. Shown are winning team members Will Sweet (left) and Scott Schroer.



STUDENTS

Georgia Tech continues to attract some of the nation's and the world's most highly qualified students. Many take advantage of opportunities to further develop their leadership skills in more than 400 student organizations. The Georgia Tech Student Foundation (GTSF), known nationally for its excellence, swept all four awards in its division at the 2015 CASE ASAP (Council for Advancement and Support of Education Affiliated Student Advancement Programs) District 3 Conference. The GTSF serves campus through multiple initiatives, ranging from developing student leaders to managing the largest student-run endowment in the country. At the same conference, Georgia Tech's Student Alumni Association won awards for Most Outstanding Organization and Most Outstanding Internal Program – Speed Networking. With the help of a generous gift from Georgia Tech alumnus Chris Klaus, CREATE-X was

unveiled in April. CREATE-X is an initiative to give students the skills, knowledge, experiences, and opportunities to confidently pursue their own careers either as entrepreneurs or as innovation leaders in a more traditional career. Signature items of this initiative are already in place: Startup Lab, Startup Summer, and Idea to Prototype undergraduate research experience.

In the Fall Capstone Design Expo, the winning Team OculoSeal found a better way to correct ptosis, the severe drooping of the upper eyelids common in the elderly. The team's OculoSTAPLE device shortens the time needed to perform corrective surgery, making it possible to be done in a doctor's office under local sedation.

Whitaker Graduate Student Fellowship winners James Wade and Alice Cheng are studying at the University of Zurich and Peking University,

respectively. Brent Uhrig received a Whitaker Postdoctoral Fellowship. Our current Fulbright scholars working internationally are Taylor Tyger, Ayanda Francis, Matthew LeBrun, and Cole Simpson.

Fourteen of Georgia Tech's 17 varsity sports improved or equaled their Academic Progress Report (APR) scores from the previous year, including three teams (golf, men's swimming, and women's tennis) that posted perfect four-year scores of 1,000.

After winning 11 games for the fifth time in the football program's history, the Yellow Jackets (11-3) finished No. 8 in the final AP Top 25 Poll. It was Tech's highest final AP ranking since 1990, when the Jackets finished second, and the 10th time Tech has placed in the final AP poll's top 10.



Clough Commons was designed to be open, flexible, and inviting for collaborative learning, a place for boundless resources in a common enterprise with the Library. That vision has become a reality, with several million visits each year. The library tower is being revitalized, maximizing existing facilities and integrating sustainable design.



FACULTY AND STAFF

In December, Georgia Tech elected its inaugural Staff Council, giving the Institute's more than 3,700 staff members for the first time a formal means of communicating their perspectives to Tech's executive leadership.

Georgia Tech's faculty and staff have a culture of giving, as exemplified by donations of more than \$365,000 from almost 1,400 individuals to support this year's State Charitable Contributions Program. Employees exceeded the campus goal of \$330,000, which will support 434 designated charities. Two units had 100 percent participation: Government & Community Relations and the Georgia Tech Foundation.

The Center for the Enhancement of Teaching and Learning (CETL) Teaching Wall was dedicated in November on the Clough Undergraduate Learning Commons' fourth floor. It bears the names of faculty members who have been honored with Teaching Excellence Awards going back to the 1960s.

Russell Dupuis, Steve W. Chaddick Chair in Electro-Optics in the School of Electrical and Computer Engineering, and Mark Prausnitz, a Regents Professor in the School of Chemical and Biomolecular Engineering, were elected as Fellows of the National Academy of Inventors (NAI). They joined an elite group of 414 NAI Fellows worldwide.

THE CAMPUS

Among Georgia Tech's top priorities are the safety, security, and well-being of its students, faculty, and staff. In all those areas, the Institute takes a proactive approach.

This past fall the Mental Health Task Force and the Sexual Violence Task Force presented detailed analyses of the existing programs, services, and resources currently devoted to these areas along with a series of individual recommendations. As a result, Georgia Tech will soon add a Center of Community Health and Wellbeing to its operations, with the intention of taking a more holistic and inclusive approach to campus wellness. Sexual violence prevention, alcohol and drug prevention, and mental health will be addressed, along with other focus areas that come to the forefront. Georgia Tech will also embrace the faith community to include that dimension in overall wellness.

As part of the Sexual Violence Task Force's efforts, Georgia Tech is working to enhance survivor-support programs, campus resources, and prevention initiatives to make Tech a safer place for all students. More than 1,000 security cameras and 500 emergency phones are posted throughout campus. Our Georgia Tech Police Department operations center uses state-of-the-art camera technology to assist first responders and investigators. With more than 80 sworn officers, the GTPD has 10 to 12 officers at all times actively patrolling campus by foot, motorcycle, bicycle, car, Segway, and K-9 patrols.

Expected to open in fall 2015 is our new Library Service Center, a collaborative project with Emory University that will create a seamless collection of all Georgia Tech and Emory resources and make them available to students, faculty, and staff from both institutions.

When the new 220,000-square-foot Engineered Biosystems Building (EBB) opens this summer on 10th Street, it will represent the single largest investment for a building in Georgia Tech history. It is a shining example of the power of partnership. Funding was provided through a combination of state support and philanthropy. The EBB will be 80 percent paid for, and the remaining debt will be retired within the next five years.



Included among Georgia Tech graduates are recipients of the G. Wayne Clough Georgia Tech Promise, a program to change not only their lives, but generations to come. Almost 350 Georgia Tech Promise students have graduated from Tech.

INVESTING IN THE FUTURE

Georgia Tech's alumni and friends provide support that makes our national and international excellence possible. Partnerships with government, the community, business, industry, and NGOs also are vital in allowing Georgia Tech to offer a world-class education.

Tangible proof of their ongoing support is the success of Campaign Georgia Tech, publicly launched in 2010 with the ambitious goal of raising \$1.5 billion by December 2015. Thanks to the leadership of Campaign co-chairs John and Mary Brock and the generosity of more than 60,000 donors, we reached that target more than a year early and now stand at nearly \$1.6 billion.

We also reached the Campaign Georgia Tech goal to fully endow the **G. Wayne Clough Georgia Tech**

Promise program, which provides a debt-free education to qualified Georgia residents from families with an annual income under \$33,300. Work remains, however, as we strive toward our goal of creating 100 new endowed chairs and professorships, and ensuring that individual schools and colleges reach their goals.

In a fast-paced world in which knowledge is growing at a pace unmatched in human history, Georgia Tech is preparing our students to be leaders and innovators. As suggested in our 25-year strategic plan, they are "designing the future," just as they have been for 130 years. Nathaniel Harris, the "father of Georgia Tech," would surely be proud.

“This is a tremendously exciting time to be at the Georgia Institute of Technology, and the reason is simple: momentum. In every aspect of what we do to further our mission, and by every meaningful barometer of progress, Georgia Tech’s influence and reputation continue to grow at a rapid pace.”

G.P. “Bud” Peterson
President, Georgia Institute of Technology



The Engineered Biosystems Building, opening 2015



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